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Sub B1

1. (Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head; and

a memory device for storing data related to the history of the ink cartridge, data related to environment of use of the ink cartridge, and data related to cleaning of the print head, said memory device having an area in which the data is stored in a rewritable manner.

2. (Amended) An ink cartridge according to claim 1, wherein the data includes data related to the number of reproduction times of the ink cartridge.

Sub B2

3. (Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device for storing data related to the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner; and

wherein the data includes data related to a maintenance processing required for a reproduction of the ink cartridge.

cont'd a6

Sub B2

4. (Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device for storing data related to the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner; and

wherein the data includes data related to a maintenance processing required for a reproduction of the ink cartridge.;

wherein the data includes data related to a condition of cleaning.

5. (Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device for storing data related to the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner;

wherein the data includes data related to a maintenance processing required for a reproduction of the ink cartridge; and

Sub B2

wherein the data includes data related to a condition of exchange of a part of the ink cartridge.

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Sub B3

7. (Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device for storing data related to the history of the ink cartridge, said memory device having an area in which the data is stored in a rewritable manner; and

wherein the data includes data related to the time of final ink depletion of the ink cartridge.

8. (Amended) An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head;

a memory device for storing data related to the history of the ink cartridge, said memory device has an area in which the data is stored in a rewritable manner; and

Sub B3 cont'd a7

~~wherein the data includes data related to an environment in which the ink cartridge is~~ used.

a8

Sub B4

13. (Amended)An ink cartridge for an ink jet type printing apparatus having a print head, the ink cartridge comprising:

a container having an ink chamber for containing ink therein;

an ink supply port for supplying the ink from said ink chamber to the print head; and

a memory device for storing data related to the ink or the ink cartridge, said memory device storing therein data relating to a minimum ink amount to be contained in the ink cartridge, said memory device having an area in which the data indicative of a residual ink amount is stored in a rewritable manner;

wherein said ink cartridge is operable to alter an ink discharge operation based on the stored data relating to the minimum ink amount and the residual ink amount.

14. (Amended) An ink-jet printing apparatus comprising:

a print head for ejecting ink droplets;

an ink cartridge containing ink therein for supplying the ink to said print head;

a memory device storing data related to the ink cartridge, data related to environment of use of the ink cartridge, and data related to cleaning of the print head;

cont'd a8

a control device accessible to said memory device for controlling said print head in accordance with data supplied from the exterior, said control device controlling a charging of the ink into said print head in accordance with data, stored in said memory device, when said ink cartridge is attached to the printing apparatus; and

said control device determines whether the print head needs cleaning and controls the cleaning operation.

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16. (Amended) An ink-jet printing apparatus according to claim 14, wherein the control of the ink charging operation is directed to the amount of ink drawn.

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18. (Amended) An ink-jet printing apparatus according to claim 17, wherein said data, related to said conditions of use, is the time of ink depletion of said ink cartridge.

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Sub B6

21. (Amended) An ink-jet printing apparatus according to claim 14, wherein said control device judges from the data, stored in said memory device, whether or not a next reproduction is possible.

22. (Amended) An ink-jet printing apparatus according to claim 14, wherein said control device judges whether or not the next reproduction is possible in accordance with the data stored

Sub B5 cont'd claim

in said memory device, and the control device displays an indication that the ink cartridge is to be discarded when it judges that the reproduction is impossible.

23. (Amended) An ink-jet printing apparatus according to claim 21, wherein said judgment is made in accordance with the number of reproduction, a lifetime, a time period after detection of ink depletion, and an environment of use.

24. (Amended) An ink-jet printing apparatus comprising:

a print head for ejecting ink droplets;

an ink cartridge containing ink therein for supplying the ink to said print head;

a memory device storing data representative of a preset minimum ink amount and residual ink in the ink cartridge; and

a control device accessible to said memory device for controlling said print head in accordance with data supplied from the exterior, said control device judging whether a cleaning operation is necessary in accordance with the data stored in said memory device.

claim 12 Sub B6

27. (Amended) A cartridge reproducing device for an ink cartridge for an ink jet type printing apparatus having a print head, the reproducing device comprising:

cont'd a12 Sub B6

means for reading data, related to a history of use of the ink cartridge to be reproduced, from a memory device provided on the ink cartridge;

a control device which controls reproduction processing apparatus in accordance with said data, and causes at least data, representing the number of reproduction and the time of reproduction, to be stored in said memory device after the reproducing operation is finished; and

said control device determines when and if the print head needs cleaning and controls the cleaning.

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29. (Amended) A reproducing device according to claim 27, wherein said reproduction processing apparatus includes at least a cartridge cleaning device, and an ink injecting device.

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31. (Amended) A reproducing device according to claim 27, wherein said control device controls the degree of cleaning by cleaning means in accordance with the data in said memory device.

a15 Sub B7

33. (Amended) An ink-jet printing apparatus comprising:

a print head for ejecting ink droplets;

an ink cartridge containing ink therein for supplying the ink to said print head;

a memory device storing data related to the ink cartridge, data related to environment of use of the ink cartridge, and data related to cleaning of the print head; and

a control device accessible to said memory device for controlling said print head in accordance with data supplied from the exterior, said control device judges, from the data stored in said memory device, whether the next reproduction is possible.

35. (Amended) An ink-jet printing apparatus according to claim 14, wherein said control device judges whether a next reproduction is possible in accordance with the data stored in said memory device, and the control device displays that the ink cartridge is discarded if it judges that the reproduction is impossible.

Please add the following new claims:

36. (New) A method of operating a printing ink cartridge reproducing device having a data memory device, a reproducing control device, an ink charging device and an ink discharge device, said method comprising:

reading ink cartridge data from an ink cartridge having an ink memory circuit;

evaluating the ink cartridge data using the reproducing control device;

determining whether regeneration of the ink cartridge is possible; and

cont'd a17

recharging the ink cartridge using the ink charging device if the reproducing control device determines that regeneration of the ink cartridge is possible.

37. (New) The method of operating a printing ink cartridge reproducing device of claim 36 wherein recharging the ink cartridge comprises:

discharging residual ink from the ink cartridge using the ink discharge device;

determining whether a part of the ink cartridge needs to be replaced using the reproducing control device;

replacing the part of the ink cartridge that needs to be replaced;

determining whether cleaning of the ink cartridge is needed by the reproducing control device;

cleaning the ink cartridge if the reproducing control device determines that the ink cartridge needs to be cleaned;

determining whether the ink cartridge needs to be washed with ink using the reproducing control device; and

washing the ink cartridge if the reproducing control device determines that the ink cartridge needs to be washed with ink.

38. (New) The method of operating a printing ink cartridge reproducing device of claim 37 wherein the reproducing control device uses data stored in the data memory device and data stored in the ink memory circuit.